Development of fluorescent protein-marked strains of *Bacillus subtilis*

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Key message. We obtained constructs pHT01-GFP and pHT43-RFP. Recombinant plasmids were transferred into endophytic *Bacillus subtilis* (strains 10-4 and 26D).

Keywords: *Bacillus subtilis*, fluorescent proteins, genetic constructs, bacterial transformation

Endophytic *Bacillus subtilis* are wild-type beneficial bacteria with antifungal, growth stimulation and anti-stress physiological programs induction activities [2,3]. However, the mechanisms of the formation of symbiotic relationships between plants and endophytic strains of *Bacillus subtilis* are not completely understood, further research in this branch required. The goal of this research was to obtain the strains of *B. subtilis* 10-4 and 26D marked with the genes of green and red fluorescent proteins (*gfp*, *rfp*). The genes of green fluorescent protein (*gfp*) and red fluorescent protein (*rfp*) were amplified and then digested with BamHI and cloned to pHT01 and pHT43 plasmids. Recombinant plasmids were extracted from *Escherichia coli* and transferred into *B. subtilis* (strains 10-4 and 26D). Transformants were selected on LB plates containing 25 µg·mL⁻¹ chloramphenicol (Cm) [1]. The obtained constructs of strains 10-4 and 26D will allow revealing the nature of the symbiotic relationships between *B. subtilis* strains 10-4, 26D and host-plants and reveal the mechanisms of symbiotic relationships formation between endophytic strains and host-plants, the localization of bacteria in plant tissues, monitoring the bacterial circulation in the plant organism, and pathways of the penetration of the bacteria into the host-plants.

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